SYSTEMS AND METHODS FOR HOLDING MEDIA DISCS

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to the field of packaging systems, and more particularly to advantageous aspects of systems and methods for holding media discs.

Description of Prior Art

Media discs, including compact discs (CDs), digital video discs (DVDs), and the like, are becoming increasingly popular. It is not uncommon for music lovers to carry dozens of CDs at a time to provide a wide selection of discs from which to choose for playing on a portable listening device or on an automobile CD player. However, a stack of media discs can be unwieldy.

Various types of media disc holders have been developed, typically including a set of sleeves or pockets for holding individual media discs. However, these media disc holders can prove to be both expensive and physically bulky, particularly for consumers who own large numbers of media discs. In addition, it is desirable for a media disc holder to be as compact as possible, to allow a stack of media discs to be carried, for example, in a backpack, handbag, or other small enclosure.

There is thus a need for an inexpensive, compact media disc holder that can hold a large number of media discs.

SUMMARY OF THE INVENTION

These and other issues are addressed by the present invention, aspects of which provide systems and methods for holding media discs. A media disc holder according to an aspect of the invention includes a spindle that fits within the spindle holes in a stack of media discs. The spindle has a free end and a strap end and has at its free end a mouth leading into a cavity extending axially through the spindle. The media disc holder further includes a latching member having a free end and a strap end. The latching member is shaped to fit within the spindle cavity. The latching member is engaged by inserting the free end of the latching member into the mouth at the free end of the spindle and sliding the latching member into the cavity. The latching member is disengaged by sliding the latching member out of the cavity through the spindle mouth. A strap has a first end attached to the spindle strap end and a second end attached to the latching member strap end. The strap is dimensioned to secure a stack of media discs loaded onto the spindle when the latching member is engaged.

Additional features and advantages of the present invention will become apparent by reference to the following detailed description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows a plan view of a media disc.

Fig. 2 shows an elevation view of a stack of media discs.

Fig. 3 shows an elevation view of a media disc holder according to a first aspect of the invention.

Fig. 4 shows an exploded view of the media disc holder shown in Fig. 3.

Fig. 5 shows a perspective view of a spindle for use in a media disc holder according to a further aspect of the invention.

Fig. 6 shows a perspective view of a latching member for use in a media disc holder according to a further aspect of the invention.

Fig. 7 shows a partial cross section of the media disc holder shown in Fig. 3.

Fig. 8 shows a partial cross section of a media disc holder according to a further aspect of the invention.

Figs. 9-11 are a series of cross sections illustrating the operation of the media disc holder shown in Fig. 3.

Fig. 12 is a flowchart illustrating a method for holding media discs according to a further aspect of the invention.

DETAILED DESCRIPTION

Fig. 1 shows a plan view of a media disc 10, such as a CD or a DVD, not drawn to scale. The media disc 10 includes a spindle hole 12. Fig. 2 shows a stack of media discs 14, similar to the media disc 10 shown in Fig. 1. When the media discs are stacked on top of each other, the spindle holes line up with each other to form a cylindrical tunnel 16 that extends axially through the stack of media discs 16.

Fig. 3 shows an elevation view of a media disc holder 20 according to a first aspect of the invention. Fig. 4 shows an exploded perspective view of the media disc holder 20 shown in Fig. 3. The disc holder 20 includes a spindle 30 having a free end 32 and a strap end 34. The spindle 30 is shaped to fit within the cylindrical tunnel formed by a stack of media discs, such as the tunnel 16 illustrated in Fig. 2. In particular, the spindle 30 is shaped to allow a user of the

invention to load media discs onto the free end of the spindle 30 one or more at a time and also to remove media discs from the spindle 30 one or more at a time. If desired, it would be possible to add a flange or other structure at the strap end 34 of the spindle 30 to prevent media discs that are being loaded onto the spindle 30 from traveling beyond the strap end 34.

In Figs. 3 and 4, the spindle 30 has a substantially cylindrical shape. However, it will also be seen that other spindle shapes may be used without departing from the invention. For example, it would be possible to use a polygonal or star-shaped profile that fits within the tunnel in a stack of media discs.

The disc holder 20 further includes a latching member 40, having a free end 42 and a strap end 44. The latching member 40 is shaped such that it may be slid, starting at its free end 42, into and out of a receiving cavity 36 in the spindle 30. The receiving cavity 36 starts at a mouth at the free end of the spindle 30 and extends axially down the length of the spindle 30. According to the present aspect of the invention, the latching member 40 and receiving cavity 36 are substantially cylindrical in shape. However, it will be apparent that any of a number of different shapes may be used without departing from the spirit of the invention.

Further according to the present aspect of the invention, the latching member 40 is formed from a tube, and has a cavity 46 extending axially therethrough. However, it will be apparent that it would also be possible to use a solid latching member 40 without departing from the spirit of the present invention.

The media disc holder 20 further includes a strap 50 that has a first end that is attached to the spindle strap end 34 and a second end that is attached to the latching member strap end 44. According to the present aspect of the invention, the spindle strap end 34 and the latching member strap end 44 are provided with respective eyelets 38 and 48 that are used to attach the

strap 50. A first end 52 of the strap 50 is threaded through the spindle eyelet 38. The portion of the strap 50 that has been threaded through the eyelet 36 is referred to herein as the "threaded portion" of the strap 50. The portion of the strap 50 that has not been threaded through the eyelet 36 is referred to herein as the "non-threaded" portion of the strap 50. In attaching the strap 50, the threaded portion of the strap 50 is folded back onto the non-threaded portion of the strap 50, and then mounted into position using a suitable fastener 56, such as a metal clip. The second end 54 of the strap 50 is attached to the latching member eyelet 48 in similar fashion using a second fastener 58. As shown in Fig. 4, the clips 56 and 58 may be initially flat, and then folded around the strap 50 using a suitable folding or crimping device. Fig. 4 shows illustrative score lines 60, 62, 64 and 66 for folding the clips 56 and 58 around the strap 50. If desired, the clips 56 and 58 may be provided with teeth or other suitable structure to grip the strap 50.

According to the present aspect of the invention, the strap 50 is resiliently elastic. To use the disc holder 20, a stack of media discs is loaded onto the spindle 30, and the strap 50 is stretched around the stack of media discs. The free end of the latching member 40 is inserted into the spindle receiving cavity 46, and the latching member is slid down the length of the receiving cavity until the latching member 40 is fully seated within the spindle 30. The length of the strap 50 is chosen such that, after the latching member 40 is seated within the spindle 30, there remains some tension in the strap 50. Friction between the spindle 30 and the latching member 40 prevents the latching member 40 from accidentally releasing from the receiving cavity 46. In addition, a "twist lock" feature, not shown, may be incorporated into the structures of the spindle 30 and latching member 40 to lock the latching member 40 in position within the spindle 30. The operation of a media disc holder according to the present invention is fully illustrated in Figs. 9-11 and discussed below.

According to a further aspect of the invention, the strap 50 is provided with markings that divide the stack into separate, visually identifiable regions 70-74. The markings 70-74 may be woven directly into the strap, or may be applied to the strap using a suitable printing or application process. These visually identifiable regions 70-74 allow a user of the media disc holder 40 to sort and search through a stack of media discs more efficiently. In addition, the strap may be provided with a surface upon which the user may write, or affix an identifying label.

Figs. 5 and 6 show perspective views of a spindle 80 and latching member 90 according to a further aspect of the invention. As shown in Figs. 5 and 6, instead of eyelets, the spindle 80 includes a pair of slots 82 and 84 at opposite sides of its strap end 86. Similarly, the latching member 90 includes a pair of slots 92 and 94 at opposite sides of its strap end 96. The slots 82, 84, 92 and 94 are dimensioned to closely received ends of a strap, such as the strap 50 shown in Figs. 3 and 4.

Fig. 7 is a cross section illustrating the attachment of the strap 50 to the spindle 30 shown in Figs. 3 and 4 and discussed above. According to the present aspect of the invention, the same technique is used to attach the strap 50 to the latching member 40. It should be noted that different attaching techniques may be used for attaching the strap 50 to the spindle 30 and to the latching member 40 without departing from the spirit of the invention. As shown in Fig. 7, an end of the strap 50 is threaded through the eyelet 30. The threaded portion of the strap 50 is then folded back over the unthreaded portion of the strap 50, and the end of the strap 50 is then attached to the unthreaded portion of the strap 50 using a metal clip 56.

Fig. 8 is a cross section illustrating the attaching of a strap 150 to the spindle 80 shown in Fig. 5 and discussed above. The same technique, or a different suitable technique, may be used

to attach the other end of the strap 150 to the latching member 90 shown in Fig. 6 and discussed above. As shown in Fig. 8, an end of the strap 150 is threaded into a first slot 82, through the interior of the spindle 80, and out the other slot 84. The threaded portion of the strap 150 is then folded back over the unthreaded portion of the strap 150, and the end of the strap 150 is then attached to the unthreaded portion of the strap 150 using a metal clip 156, or other suitable fastener.

Figs. 9-11 show a series of cross sections illustrating the operation of a media disc holder 220 according to the present invention. The media disc holder includes a spindle 230, a latching member 240, and a strap 250. The spindle 230 includes a free end 232 and a strap end 234. The latching member 240 also includes a free end 242 and a strap end 244. A first end of the strap 250 is attached to the spindle strap end 234, and a second end of the strap 250 is attached to the latching member strap end 244.

As shown in Figs. 9-11, the spindle 230 includes at its strap end 234 a flange 235, and the latching member 240 includes at its strap end 244 a second flange 245. The spindle flange 235 prevents media discs from traveling beyond the end of the spindle 230. The spindle flange 235 is useful, for example, during the loading of the media disc holder 220. Similarly, the latching member flange 245 prevents media discs from traveling beyond the end of the latching member 240. As shown in Figs. 9-11, the flanges 235 and 245 lie flat against the media discs at the top and bottom of the stack 214. It should be noted that the flanges 235 and 245 may have different shapes and dimensions without departing from the spirit of the invention. For example, it would be possible to use flanges 235 and 245 that extend only slightly beyond the outer circumferences of the spindle 230 and latching member 240.

As shown in Fig. 9, a stack of media discs 214 has been loaded onto the spindle 230 by inserting the spindle 230 through the spindle holes of the media discs in the stack 214. This can be accomplished, for example, by holding the spindle 230 in one hand, and using the other hand to load media discs onto the spindle 230 one or more at a time. If desired, a table or other suitable nearby surface can be used to temporarily hold media discs to be loaded onto the spindle 230.

As shown in Fig. 10, once the spindle 230 has been loaded with media discs, the strap 250 is wound around the outside of the stack of media discs 214. This may be accomplished, for example, by using a free hand to grasp the latching member 240 and pull it around the stack 214. As mentioned above, according to an aspect of the invention, the strap 250 is resiliently elastic and durable, such as a bungee-type material. Thus, in wrapping the strap 250 around the stack of media discs 214, the strap 250 will typically be stretched, as needed.

Once the strap 250 has been wound around the stack of media discs 214, the free end of the latching member 250 is then inserted into the mouth at the spindle's free end 232, and the latching member 240 is then slid down the length of the spindle's receiving cavity 246. If a "twist lock" feature, mentioned above, has been implemented, the latching member 240 would be twisted within the receiving cavity 246 to lock the latching member 240 in position.

Fig. 11 illustrates the stack of media discs 214 after the latching member 240 has been fully seated within the spindle 230. It will be seen from Fig. 11 that in the loaded media disc holder, the strap 250 extends radially outward from the spindle and latching member strap ends 234 and 244 towards the outer circumference of the stack 214, and further extends down one side of the stack's outer circumference.

To release the media discs from the media disc holder 220, the above-described steps are reversed. First, if the disc holder 200 includes a twist lock feature, the latching member 240 is twisted to release it from the spindle 230. The user of the media disc holder may grasp the stack of media discs 214 in one hand, with the latching member strap end 244 pointing upward. The user would then use the other hand to pull the latching member 240 out of the spindle receiving cavity 246. This may be accomplished any number of ways. For example, the user may work a finger from the free hand under the strap 250, and then use the strap 250 to pull the latching member 240 free.

Once the latching member 240 has been pulled free, the user may allow the latching member 240 to dangle underneath the stack of media discs 214. The user may then use the free hand to remove media discs from the stack 214, either singly or in groups. The user may wish to use a nearby surface, such as a table or dashboard, to temporarily hold discs removed from the stack.

It will be seen that, where the latching member is formed from a tube, such as in the present example, the latching member 240 includes an interior cavity 246 that may serve as a small, cylindrical compartment. This compartment may be used, for example, to hold a writing implement, or a piece of paper containing identifying information.

According to an aspect of the invention, when the latching member 240 has been fully seated in the spindle 230, the strap 250 is still slightly stretched, thus applying a certain amount of tension around the stack of media discs 214. This tension is useful in preventing the individual media discs in the stack 214 from shifting. Also, tension in the strap 250 tends to increase friction between the latching member 240 and the interior surface of the spindle 230. This increased friction tends to prevent the latching member 240 from accidentally pulling out of

the spindle 230. It should be noted that although Figs. 9-11 illustrate a stack of media discs 214 that completely fills the spindle 230, it would also be possible to use the media disc holder 220 to hold a shorter stack of media discs.

Fig. 12 shows a flowchart of a method 300 according to a further aspect of the invention. In step 302, a stack of media discs is loaded onto a spindle having a free end and a strap end. The spindle is attached by a strap to a latching member having a free end and a strap end. The strap is attached to the strap ends of the spindle and the latching member. In step 304, the strap is pulled around the stack of media discs. In step 306, the free end of the latching member is inserted into a mouth in the free end of the spindle. Finally, in step 308, the latching member is slid down the length of a receiving cavity in the spindle.

While the foregoing description includes details which will enable those skilled in the art to practice the invention, it should be recognized that the description is illustrative in nature and that many modifications and variations thereof will be apparent to those skilled in the art having the benefit of these teachings. It is accordingly intended that the invention herein be defined solely by the claims appended hereto and that the claims be interpreted as broadly as permitted by the prior art.